EVALUATION OF PATIENTS WITH TRANSESOPHAGEAL ECHOCARDIOGRAPHY FOLLOWING CEREBRAL ISCHEMIC EVENTS: FOLLOW-UP EXPERIENCE

Alan Camp, Anthony C. Pearson, Nancy A. Sullivan, Camilo Gomez, Arthur J. Labovitz, St. Louis University Medical Center, St. Louis, Missouri

Transesophageal echocardiography (TEE) frequently diagnoses cardiac abnormalities that cannot be imaged by other techniques which may be responsible for embolic cerebral ischemic events (CIE). To investigate the potential prognostic significance of abnormalities detected by TEE, we reviewed the baseline TEE, medical records, and follow-up information of 60 pts. Presenting events were cerebrovascular accidents (CVA) in 37 pts and transient ischemic attacks (TIA) in 23 pts. All pts were free of cerebrovascular disease by carotid duplex scans. Pts with prosthetic heart valves were excluded. Abnormalities unique to TEE examination were present in 31 pts: atrial septal aneurysms - 10, atrial septal defect - 11, spontaneous contrast - 8, and atrial or ventricular thrombus - 11. During a mean follow-up of 8±4 months 12 pts (20%) had recurrent CIE. Of the 12 pts with recurrent CIE, 6/12 had unique TEE abnormalities and 10/12 had either TEE abnormalities or other abnormalities (atrial fibrillation, or wall motion abnormalities) which could cause embolic CIE. In conclusion, we observed a high rate of TEE abnormalities and recurrent CIE in pts with no cerebrovascular disease. Treatment may help to reduce the high recurrent CIE rate in this patient group.

USEFULNESS OF TRANSESOPHAGEAL ECHOCARDIOGRAPHY DURING INVASIVE INTRACARDIAC PROCEDURES.

Elizabeth O. Ofili, Ramon Castello, Ubeydullah Deligonul, Patricia M. Lenzen, Morton J. Kern, Arthur J. Labovitz. St. Louis University Medical Center, St. Louis, MO.

Transseptal catheterization (TC) is a well-established technique that carries a small, but definite risk. Transesophageal echocardiography (TEE) provides excellent visualization of the interatrial septum. We performed TEE during TC in 12 pts: 10 studies were performed to guide the transseptal puncture for balloon mitral valvuloplasty (BMVP). The remaining 2 pts had persistent hypoxia, unresponsive to maximal mechnical ventilation; TC was doneto facilitate balloon catheter closure of a patent foramen ovale (PFO) with resultant resolution of hypoxia. The TC procedure lasted 3 0 ± 10 minutes and was well-tolerated in all pts. In 9 of the 10 pts undergoing BMVP, TEE clearly showed the fossa ovalis and facilitated transseptal puncture in 6/10 pts. In 3 cases the fluoroscopically-guided transseptal catheter was placed at the sinus venosus level, and TEE was extremely useful in repositioning the catheter at the fossa ovalis. Left atrial puncture occurred in 1 pt and was immediately identified on TEE: rapid accumulation of pericardial fluid and right atrial collapse confirmed tamponade; TEE confirmed successful treatment.

During transseptal balloon closure of PFO, TEE provided excellent visualization and guidance of the catheter. Balloon inflation in the left atrium, PFO closure and evaluation for residual shunting with intravenous agitated saline were achieved under TEE guidance.

TEE is a valuable catheterization laboratory adjunct in providing enhanced visualization of the interatrial septum and immediate fucntional data related to interventional procedures.

TRANSESOPHAGEAL ECHOCARDIOGRAPHY PREDICTS PROSTHESIS SIZE FOR VALVE REPLACEMENT.

Charlotte Jutila, Robert Croke, Sandy Perea, Steven Ung, Fabrizio Follis, Stuart Pett, Frank Gurule, Peter Crotta, Bruce Shively. Lovelace Medical Center/University of New Mexico. Albuquerque, NM.

Precordial echocardiography (PREC) has not been accurate in predicting the size of prostheses needed for valve replacement. Transesophageal echo (TEE) was assessed in this regard by review of PREC and TEE performed within 24 hr preoperatively in 32 pts receiving mitral (MV) (n=17) or aortic (AV) (n=15) valve replacement. Their mean age was 61 yr, with 9 women and 23 men. Diagnoses were stenosis (n=10), regurgitation (n=5), and endocarditis (n=17). MV orifice was measured at end diastole in 4 chamber view and AV orifice was measured in midsystole at the most proximal attachments of the left and right cusps by sonographers averaging values from 3 consecutive cycles, blinded to surgeons' choice. Interobserver variability was 19% for PREC and 6% for TEE. Results were similar for MV and AV. Comparison of PREC and TEE for predicting prosthesis size (PS) used by surgeons blinded to echo results is shown in the table:

	r	slope	PS±1mm	PS±2mm
PREC	0.71	0.43	7/32(22%)	15/32(47%)
TEE	0.92*	0.73*	28/32(88%)*	30/32(94%)*

*p=<0.001 compared to PREC

In preoperatively predicting PS, the greatest difference of PREC from PS was 13 mm while the greatest difference of TEE from PS was 5 mm.

CONCLUSION: TEE offers predictions of prosthesis size sufficiently accurate to allow preparation of prostheses before excision of native valves, saving bypass time, and to aid homograft programs.

DETECTION OF INTRACARDIAC SOURCE OF EMBOLISM BY TRANSESOPHAGEAL ECHOCARDIOGRAPHY IN STROKE PATIENTS

Diego Sadler, Jay Brown, P. S. Chandrashaker, Stephen Shafer, Harlem Hospital Center, Columbia University College of Physicians & Surgeons, New York, N.Y.

The value of transesophageal echocardiography (TEE) for the detection of intracardiac sources of embolism in stroke patients has not been clearly established. To assess this issue, 57 consecutive Pts, who had suffered non-hemorrhagic cerebrovascular accidents 10.4 days (on average) earlier, were studied with both TEE and regular transthoracic echocardiography (TTE). Fifty-four Pts (94.7%) tolerated and underwent a complete TEE study. No complications occurred. Fourteen of 57 (24%) had suboptimal TTE (6 Pts were on mechanical ventilation). Forty-five Pts were in normal sinus rhythm and 9 were in atrial fibrillation. The LA appendage was visualized in 52 of 54 Pts (96%) with TEE but in none with TTE. LA appendage thrombi were detected in 5 Pts with TEE and in none with TTE. Three of these 5 were in normal sinus rhythm and 2 in atrial fibrillation; 4 of the 5 also had LA spontaneous contrast echos (SCE) and LA enlargement. Eleven Pts had SCE observed with TEE but not with TTE. All of them had structural cardiac abnormalities: 8 Pts (72%) had LA enlargement, 3 (27%) had RA enlargement and 7 (67%) had reduced LV systolic function. SCE was present in 4 of 9 Pts (44%) with atrial fibrillation and in 7 of 45 Pts (15%) with normal sinus rhythm. SCE was also present in 4 of 5 Pts (80%) with LA appendage thrombus *vs* 7 of 45 Pts (14%) without a thrombus. Patent foramen ovale was detected in 6 Pts by TEE but in only 2 of these by TTE. Of 5 Pts in which calcific deformed aortic valve was clearly observed by TEE, TTE detected it in only 3, with less resolution. A mitral valve myxoma was diagnosed with TEE but not with TTE in a patient with an otherwise normal heart. Mitral valve prolapse was observed in 2 Pts by TEE and in 1 of these by TTE.

Conclusions: TEE is a method of considerable diagnostic value for detection of LA appendage thrombi, SCE, and other potential intracardiac sources of embolism not detected with TTE. LA appendage thrombus is frequently associated with LA enlargement and SCE.